# Table of Contents

# 1.0 Introduction

## 1.1 Background

National Emissions Standards for Hazardous Air Pollutants for Coke Ovens: Pushing, Quenching and Battery Stacks, were promulgated under 40 CFR 63 Subpart CCCCC on April 14, 2003. The standards specify the following as affected facilities under 40 CFR 63 Subpart CCCCC:

- each coke oven battery

The standards address emissions from each of the following emission sources:

- pushing
- soaking
- quenching
- battery stacks

## 1.2 Purpose

These standards require that certain plans be developed and implemented by April 14, 2006. The purpose of this document is to comply with the requirements of 40 CFR 63 Subparts A and CCCCC to develop and implement the following plans:

- Operation and maintenance plan
- Site-specific monitoring plan
- Startup, shutdown and malfunction plan
- Site-specific soaking work practice plan – contained in ISO Procedure PL.04.06.03

## 1.3 Applicability

### 1.3(a) Operation and Maintenance Plan

40 CFR 63.7300 requires that a written Operation and Maintenance plan be developed and implemented for the following process equipment, particulate emission capture systems* and particulate emission control devices:

- Each by-product coke oven battery
- Each particulate emission capture system applied to pushing
- Each particulate emission control device applied to pushing

* For purposes of this plan, "emission capture system" includes emission capture hoods, ductwork, dampers and fans important to the efficient collection and transport of particulate emissions to a particulate emission control device. The

particulate emission control device (baghouse and associated filter media) is not part of the particulate emission capture system.

### 1.3(b) Site-Specific Monitoring Plan

40 CFR 63.7331(b) requires that a Site-Specific Monitoring Plan be developed and implemented for each Continuous Parametric Monitoring System (CPMS) required in 40 CFR 63.7330. Therefore, each CPMS associated with each particulate emission capture system and each particulate emission control device required to have an Operation and Maintenance Plan, listed in 1.3.(a) above, is also required to have a Site-Specific Monitoring Plan.

### 1.3(c) Startup, Shutdown and Malfunction Plans

40 CFR 63.7310(c) requires that a written Startup, Shutdown and Malfunction Plan be developed and implemented according to the requirements of 40 CFR 63.6(e)(3), which states in part:

> *"...The owner or operator of an affected source must develop and implement a written startup, shutdown and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown and malfunction, and a program of corrective action for malfunctioning process and air pollution control and monitoring equipment used to comply with the relevant standard."*

Therefore, the Startup, Shutdown and Malfunction Plan must address all process, particulate emission control equipment and monitoring equipment used to comply with the standard.

## 2.0 Operation and Maintenance Plan

### 2.1 Scope

The following process equipment, particulate emission capture systems, and particulate emission control devices are covered by this plan:

- By-product coke oven batteries
  - Battery 1
  - Battery 2
  - Battery 3
  - Battery 13
  - Battery 14
  - Battery 15
  - Battery 19
  - Battery 20
  - B Battery
  - C Battery
- Particulate emission capture systems
  - 1-3 PEC Hood, duct, fan, and dampers
  - 13-15 PEC Hood, duct, fan, and dampers
  - 19/20 PEC Hood, duct, fan, and dampers
  - B Battery Shed, fan, and dampers
  - C Coke Transfer Car, duct, fan, and dampers
- Particulate emission control devices
  - 1-3 PEC Baghouse including filter media
  - 13-15 PEC Baghouse including filter media
  - 19/20 PEC Baghouse including filter media
  - B Battery Baghouse including filter media
  - C Battery Baghouse including filter media

2.1.1 The purpose of this plan is to ensure that the above are operated and maintained in a manner consistent with good air pollution control practices. (63.7300(a))

2.1.2 Definitions

2.1.2.1 Capture system includes the hood, dampers, ductwork, and fans.

2.1.2.2 Control device consists of the filter media bags and the associated housing.

2.1.2.3 Process equipment includes the batteries and all associated equipment including heating system.

### 2.2 Plan Elements for By-Product Coke Oven Batteries (63.7300(b))

2.2.1 Underfiring Gas Parameters Monitored

| Parameter | Frequency | Recording Method | Regulatory Citation |
|---|---|---|---|
| Wobbe | Continuous | CMS Records | 63.7300(b)(1) |

| | | | |
|---|---|---|---|
| Volume | Continuous | CMS Records | 63.7300(b)(1) |
| Pressure | Continuous | CMS Records | 63.7300(b)(1) |

2.2.2 Flue and Crosswall Temperatures

2.2.2.1

| Parameter | Frequency | Recording Method | Regulatory Citation |
|---|---|---|---|
| Control Flue Temps | Daily | CMS Records | 63.7300(b)(2) |
| Battery Crosswalls | Monthly | CMS Records | 63.7300(b)(2) |

2.2.2.2 Control Flue span temperatures will be read and recorded on available ovens daily by representatives of the Battery Heating Department. If temperatures cannot be taken due to safety concerns or unforeseen and uncontrollable circumstance, this will be documented in the heaters' log. (63.7300(b)(2))

2.2.2.3 Battery Crosswall Temperatures will be read and recorded monthly on available ovens by representatives of the Battery Heating Department. (63.7300(b)(2))

2.2.3 Prevention of pushing ovens not fully coked (63.7300(b)(3))

2.2.3.1 The Soaking Work Practice Plan will be implemented as a means of control.

2.2.3.2 Battery flue aim temperatures will be determined by the Battery Heating Department using recorded underfire (UF) gas parameters, coal information, observation of coke conditions, and desired production schedule. Underfire gas volume will be determined based on battery span temperature and/ or the use of a computer model.

2.2.3.3 Pusher machine operators will visibly inspect the coke prior to pushing. Ovens showing signs of incomplete coking will be evaluated by the shift manager or designee to determine if the pushing sequence can commence. If it is determined that additional coking time is required, the doors will be put back on the oven and notify the Heating Department. That oven will not be pushed until fully coked.

2.2.4 Overcharge and Undercharge Prevention (63.7300(b)(4))

2.2.4.1 Coal Parameters Monitored

| Parameter | Frequency | Recording Method | Regulatory Citation |
|---|---|---|---|
| Coal Moisture | Continuous | CMS Records | 63.7300(b)(4) |
| Coal Bulk Density | Continuous | CMS Records | 63.7300(b)(4) |

2.2.4.2 Bulk density of coal charged will be controlled to set points determined by management. Oil addition will be the primary means of control. (63.7300(b)(4))

2.2.4.3 Management will determine volumetric set points based on oven filling observation. (63.7300(b)(4))

2.2.4.4 Larry car operators will visibly check volumetric hoppers to ensure proper filling and complete discharge into ovens. (63.7300(b)(4))

2.2.4.5 Pusher machine operators will level each oven charged and report abnormal conditions to supervisor. (63.7300(b)(4))

2.2.4.6 Pusher machine operator will communicate with the larry car operator to ensure that leveling bar is pulling back coal from each oven.

2.2.5 Inspection of Flues, Burners and Nozzles (63.7300(b)(5))

2.2.5.1

| Equipment | Frequency | Recording Method | Regulatory Citation |
|---|---|---|---|
| Flues | Monthly | Electronic | 63.7300(b)(5) |
| Burners | Monthly | Electronic | 63.7300(b)(5) |
| Nozzles | Monthly | Electronic | 63.7300(b)(5) |

2.2.5.2 Representatives of the Battery Heating Department will inspect flues, burners and nozzles at least monthly on each available oven. Repair requirements will be documented in the PSM section of the network. (63.7300(b)(5))

2.3 Quench Tower Baffle Washing Frequency Schedule and Procedures. (63.7300(b)(6))

2.3.1

| Tower | Frequency | Recording Method | Regulatory Citation |
|---|---|---|---|
| All Primary Towers | Daily | CMS Records | 63.7300(b)(6) & 63.7295(b)(2) |
| Baffle inspection for 95% cross sectional coverage | Monthly | CMS Records | 63.7295 (b)(1) and (3) |
| Auxiliary Towers | NA unless lose backup status | NA | |

2.3.2 Quench Tower Baffle Washing will be conducted using automated controls. Baffles will be washed at least once per day unless the ambient temperature does not rise above 30 degrees F at any time during the 24-hour day. The baffles will be manually washed in the event that the automatic system is not available. (63.7295(b)(2)(I)

2.3.3 The concentration of total dissolved solids (TDS) in the quench water will be maintained at or below 1,100 milligrams per liter (mg/L) using acceptable makeup water. (63.7295(a)(1)(i)

2.3.4 Repairs or replacement of damaged or missing baffles will be initiated within 30 days and completed as soon as is practical. (63.7295(b)(4)

2.4 Pushing Emission Capture and Control Systems

2.4.1 The baghouse servicing B Battery will be operated such that the emissions from the baghouse will not exceed 0.01 grain/ dscf as measured the front half captured on the test filter. (63.7290(a)(1))

2.4.2 The baghouses servicing 1-3, 13-15, 19/20, and C Batteries will be operated such that the emissions form the baghouse will not exceed 0.02 pound/ ton of coke as measured on the front half of the test filter. (63.7290(a)(2))

2.4.3 Equipment inspection of capture systems (63.7300( c)(1))

| Equipment | Inspection Frequency | Inspecting Department | Recording Method | Regulatory Citation |
|---|---|---|---|---|
| Ductwork (external) | Monthly | Maintenance | ERP | 63.7300(c)(2) |
| Hoods | Monthly | Maintenance | ERP | 63.7300(c)(2) |
| Fan Integrity | Monthly | Vibration analyst | Internet | 63.7300(c)(2) |
| Baghouse Gas Inlet Dampers | Monthly | Maintenance | ERP | 63.7300(c)(2) |
| #1 & #2 Baghouse Fresh Air Dampers | Monthly | Maintenance | ERP | 63.7300(c)(2) |
| Fan Inlet Dampers | Monthly | Maintenance | ERP | 63.7300(c)(2) |
| Fan Bearings and Couplings | Monthly | Vibration analyst | Internet | 63.7300(c)(2) |
| Fan Motor Bearings | Monthly | Vibration analyst | Internet | 63.7300(c)(2) |
| #1 & #2 Baghouse Gas Inlet Damper Cylinders | Monthly | Maintenance | ERP | 63.7300(c)(2) |
| #1 & #2 Baghouse Fresh Air Damper Actuators | Monthly | Maintenance | ERP | 63.7300(c)(2) |

2.4.4 All deficiencies found during inspections listed in the above table such as holes, deformation-affecting flow, or other conditions affecting performance will be recorded in ERP. Corrective action will be completed before the next scheduled inspection.

2.4.4.1 The baghouse inlet suction pressure will be reviewed monthly as an indicator of the presence of flow restrictions caused by dents or accumulated dust in the ductwork on #1, #2 and C Baghouses. (Not applicable on B Battery) (63.733(c)(1)

2.4.4.2 The baghouse inlet suction pressure and stub duct pressure will be reviewed monthly to verify the functionality of the pressure sensors on #1, #2 and C Baghouses. (Not applicable on B Battery). (63.733(c)(1)

2.4.4.3 Fan amps will be reviewed on 1, 2, and C Baghouses to verify proper fan inlet damper operation. (63.733(c)(1)

2.4.4.4 On B Battery Baghouse, flow and fan amps will be reviewed to ensure proper fan inlet damper operation. (63.733(c)(1)

2.4.5 Preventive Maintenance Schedule for Control Devices

| Equipment | PM Frequency | PM Task | Recording | Regulatory Citation |
|---|---|---|---|---|
| #1 & #2 Baghouse Air Compressors | Quarterly | Change Oil | ERP | 63.7300(c)(2) |
| 'B' Baghouse Air Compressors | Semi-Annual | Change Oil | ERP | 63.7300(c)(2) |
| 'B' Baghouse Bags | 24 Months | Replace | ERP | 63.7300(c)(2) |
| #1 & #2 Baghouse Bags | 36 Months | Replace | ERP | 63.7300(c)(2) |

2.4.6 Bag Leak Detection System – Corrective Action Plan (63.7300(c)(3)

2.2.10.1 A bag leak detection probe will be installed in each baghouse module. An audible and visual alarm will initiate when dust levels are above the predetermined level in the Mixing Station and a visual alarm will initiate at the baghouse.

2.2.10.2 The Mixing Station operator will acknowledge the audible alarm and then notify via plant radio and/or telephone PEC Electrical or designee.

2.2.10.3 PEC Electrical or designee will acknowledge the alarm within 1 hour of the alarm (63.7300(c)(3) on the panel view (the visual alarm at the Mixing Station will also show this acknowledgement). PEC Electrical or designee will take one or more of the following actions:

2.2.10.3.1 Clean the probe and observe levels after cleaning to determine if a dirty probe was the cause of the alarm. (63.7300(c)(3)(v) Notify the Mixing Station that the situation is resolved; and/ or

2.2.10.3.2 Determine if the probe is functioning properly. Repair bag leak detection system. (63.7300(c)(3)(v) If the probe is not functioning properly and cannot be corrected within an hour of the initial alarm,

notify the Mixing Station of a Bag Leak Detection System breakdown; and/or

2.2.10.3.3 Shut the affected module down. Notify the Mixing Station and operations of a PEC breakdown. (63.7300( c)(3)(iv)

2.2.10.3.4 The Mixing Station will follow the procedure for notifying ACHD and others according to the applicable breakdown procedure.

2.2.10.4 Following the receipt of a valid bag leak detection alarm, PEC will inspect the baghouse for air leaks, torn or broken bags, or any other condition that may cause an increase in emissions. (63.7300(c)(3)(i)

2.2.10.5 Torn, broken, or leaking bags will be isolated and repaired or replaced. (63.7300(c)(3)(ii) and (iii)

2.2.10.6 Corrective action to correct a bag leak detection issue will be initiated within 24 hours of the alarm and completed as soon as is practical. (63.7300(c)(3)

2.2.10.7 In the event of a module isolation or complete baghouse shutdown, operations will take the appropriate actions according to the applicable procedure for pushing without the entire PEC system.

## 3.0 Site-Specific Monitoring Plan

### 3.1 Scope

The following continuous parametric monitoring systems (CPMS) for changes in relative particulate matter loadings (63.7330(a) are covered by this plan:

- Bag Leak Detection System on 1-3 PEC Modules
- Bag Leak Detection System on 13-15 PEC Modules
- Bag Leak Detection System on 19/20 PEC Modules
- Bag Leak Detection System on B Battery PEC Modules
- Bag Leak Detection System on C Battery PEC Modules

The opacity of emissions from the following battery combustion stack will monitored continuously:

- Battery 1
- Battery 2
- Battery 3
- Battery 13
- Battery 14
- Battery 15
- Battery 19
- Battery 20
- B Battery
- C Battery

### 3.2 Control and Capture System Monitoring Requirements for Continuous Compliance (63.7330)

3.2.1 Schedule

| Parameter | Frequency | Recording | Regulatory Citation |
|---|---|---|---|
| Module Pressure Drop (1-3, 13-15, 19/20, and C PEC Systems maintained between 2 and 10" w.c.) * | Continuous across push | CMS Records | 63.7330(a)(1) |
| Minimum Fan Amps (1-3, 13-15, 19/20, and C PEC Systems) | Continuous across push | CMS Records | 63.7330(d) |
| PEC Duct Suction Pressure (1-3, 13-15, 19/20, and C PEC Systems) | Continuous across push | CMS Records | |
| Module Pressure Drop (B Battery) * | Continuous across push | CMS Records | 63.7330(a)(4) |

| | | | |
|---|---|---|---|
| Minimum Fan Amps (B Battery) | Continuous across push | CMS Records | 63.7330(d) |
| PEC Flow (B Battery) | Continuous | CMS Records | 63.7330(a)(4) |
| Confirm dust removal from hoppers | Weekly | ERP | 63.7330(a)(2) |
| Compressed Air Pressure | Daily | Baghouse Daily Reading Form | 63.7330(a)(3) |
| Visual check of bag cleaning mechanisms | Monthly | ERP | 63.7330(a)(5) |
| Confirm physical integrity of baghouse | Quarterly | ERP | 63.7330(a)(7) |

* Used to indicate the proper operation of the cleaning cycles

3.2.2. Documentation that sample probes and other interfaces are installed and located such that measurements are representative will be maintained in Environmental Department files. (63.7331(b)(1).

3.2.3. Documentation for the performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system will be maintained in Environmental Department files. (63.7331(b)(2).

3.2.4. Documentation of the performance evaluation procedures and acceptance procedures such as calibrations will be maintained in Environmental Department files. (63.7331(b)(3)

3.2.5. Bag leak detection system will be operated and maintained according to good air pollution control practices. The necessary parts for routine repairs will be readily available. (40 CFR 63.8(c)(1))

3.2.6. The results of the performance test as well as the completed manufacturer's specifications or recommendations for installation, operation, and calibration of the bag leak detection system shall be kept in the Environmental Control Department Central Files. (40 CFR 63.8(c)(3))

3.2.7. The bag leak detection system will complete one cycle of operation (sampling, analyzing, and data recording) at least every 15 minutes. (40 CFR 63.8(c)(4)(ii))

3.2.8. If the bag leak detection system is out of control (i.e. has failed a manual calibration or performance test), appropriate corrective action will be performed. The applicable breakdown procedure will also be followed. (40 CFR 63.8(c)(7) and (8))

3.2.9. Ongoing data QA procedures consistent with 40 CFR 63.8(d)

3.2.10. Ongoing Recordkeeping and reporting procedures consistent with the general requirements of 40 CFR 63.10(c), (e)(1) and (e)(2)(i).

3.3 Combustion Stack Continuous Opacity Monitor

3.3.1 Continuous opacity monitors (COM) will monitor the opacity of emissions from all battery combustion stacks (63.7330(e))

3.3.2 Stack opacity daily average will be determined reducing 1-second opacity readings into 10-second average (at least 1 value is required for a valid 10-second average); the 10-second averages will be reduced into 6-minute averages (36 values are required for a valid 6-minute average); the 6-minute averages will be reduced to hourly averages; and all valid 6-minute averages will be reduced into a daily average.

3.3.3 The daily average opacity limit is 15% for a battery on normal coking time and 20% for a battery on battery-wide extended coking time. 63.7296 (a) and (b)

3.4 Fugitive Pushing Emissions

3.4.1 Monitoring of fugitive pushing emissions will be done per the MACT Pushing Work Practices Procedure.

3.5 Quench Tower Baffle Washing and Quench Water

3.5.1 The ambient temperature will be continuously recorded at least on days that the baffles are not washed in the Coke Management System. 63.7295(b)(2)(ii)

*3.5.2* The quench system will track the number of quenches by the primary tower. This will be periodically compared to the total number of pushes in order to verify that the alternate tower has maintained "back-up station" status.

*3.5.3* Quench water samples will be collected from the pump system which feeds water used for quenching under normal operating conditions. (63.7325(a)(1)

*3.5.4* The TDS of the quench water will determined using Method 160.1 in 40 CFR part 136.3 except the sample must be dried to 103 to 105 ° C. (63.7325(a)(2)

*3.5.5* TDS in the quench water will not exceed 1,100 mg/L (63.7326(c ))

3.6 Initial Compliance Demonstration

3.6.1 The PEC systems will be tested between April 14 and September 14, 2006 (63.7320(a) and subsequently every 30 months (63.7321) per the following method:

3.6.1.1 For B Battery shed:

3.6.1.1.1 The concentration of particulate matter will be determined according to the test methods in appendix A to 40 CFR Part 60. (63.7295 (b)(1)) These will be detailed in a test protocol submitted to ACHD prior to the test date.

3.6.1.1.1.1 Method 1 to select sampling port locations and number of traverse points. Samples must be located at the outlet of the control device and prior to the release to the atmosphere;

3.6.1.1.1.2 Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas;

3.6.1.1.1.3 Method 3, 3A, or 3B to determine the dry gas molecular weight of the stack gas;

3.6.1.1.1.4 Method 4 to determine the moisture content of the stack gas;

3.6.1.1.1.5 Method 5 or 5D to determine the concentration of front half particulate matter in the stack gas.

3.6.1.1.2 During each test run, sample only during periods of actual pushing. Collect a minimum sample volume of 30 cu ft of gas during each sample run. Three valid test runs will be taken to comprise a performance test. An integral number of pushes must be sampled during each run. 63.7295 (b)(2)

3.6.1.2 For 1-3, 13-15, 19/20, and C PEC Systems

3.6.1.2.1 The concentration of particulate matter will be determined according to the test methods in appendix A to 40 CFR Part 60. (63.7295 (b)(1)) These will be detailed in a test protocol submitted to ACHD prior to the test date.

3.6.1.2.1.1 Method 1 to select sampling port locations and number of traverse points. Samples must be located at the outlet of the control device and prior to the release to the atmosphere;

3.6.1.2.1.2 Method 2, 2F, or 2G to determine the volumetric flow rate of the stack gas;

3.6.1.2.1.3 Method 3, 3A, or 3B to determine the dry gas molecular weight of the stack gas;

3.6.1.2.1.4 Method 4 to determine the moisture content of the stack gas;

3.6.1.2.1.5 Method 5 or 5D to determine the concentration of front half particulate matter in the stack gas.

3.6.1.2.2 During each test run, sample only during periods of actual pushing. Collect a minimum sample volume of 30 cu ft of gas during each sample run. Three valid test runs will be taken to comprise a performance test. An integral number of pushes must be sampled during each run. 63.7295 (b)(2)

3.6.1.2.3 The total combined weight of coke pushed in tons during the test will be calculated from coal charged or by using accounting values for coke and coke breeze produced. (63.7295 (b)(3))

3.6.1.2.4 The process-weighted mass emissions ($E_p$)for each test run using the following equation:

$$E_p = \frac{\text{(concentration PM, gr/dscf)(Vol flow rate stack gas, dscf/hr)(time, hr)}}{\text{(coke pushed, tons)(7000 gr/lb)}}$$

3.6.1.3 During the initial performance test the fan amperes will be measured and recorded during each push sampled to determine the minimum operating fan motor ampere. It will be the lowest measured during any of the three runs that meet the emission limit. (63.7323 (e)(1))

3.6.1.4 After the setting of the minimum fan motor ampere level, in order to change it, the following will be done:

3.6.1.5 The Environmental Department will submit a written notification to request a new performance test to revise the operating limit;

3.6.1.6 A new performance test will be conducted including the measurement of fan motor amperes and mass emission rates; and

3.6.1.7 The procedure described above for the initial performance demonstration will be followed.

3.6.2 Initial compliance with the stack opacity requirement will be demonstrated using the COM system and the data reduction procedure described above. (63.7324)

## 4.0 Startup, Shutdown and Malfunction Plan (63.7336(b)

### 4.1 Scope

The purpose of the plan is to ensure that, at all times, USS Clairton Works operates and maintains each affected source, including associated air pollution control equipment and monitoring equipment, in a manner which satisfies the general duty to minimize emissions established by 40 CFR 63.6(e)(1)(i). The measures to be taken to accomplish this are outlined in this plan.

The following process, particulate emission control, capture, and monitoring equipment used to comply with the standard are covered by this plan:

- Process Equipment
  - Battery 1
  - Battery 2
  - Battery 3
  - Battery 13
  - Battery 14
  - Battery 15
  - Battery 19
  - Battery 20
  - B Battery
  - C Battery
- Particulate emission control devices
  - 1-3 PEC Baghouse
  - 13-15 PEC Baghouse
  - 19/20 PEC Baghouse
  - B Battery Baghouse
  - C Battery Baghouse
- Particulate Emission Capture Devices
  - 1-3 PEC Hood, duct, fan, and dampers
  - 13-15 PEC Hood, duct, fan, and dampers
  - 19/20 PEC Hood, duct, fan, and dampers
  - B Battery Shed, fan, and dampers
  - C Battery Coke Transfer Car, duct, fan, and dampers
- Monitoring Equipment
  - Battery 1 Stack Opacity Monitoring System
  - Battery 2 Stack Opacity Monitoring System
  - Battery 3 Stack Opacity Monitoring System
  - Battery 13 Stack Opacity Monitoring System
  - Battery 14 Stack Opacity Monitoring System
  - Battery 15 Stack Opacity Monitoring System
  - Battery 19 Stack Opacity Monitoring System
  - Battery 20 Stack Opacity Monitoring System
  - B Battery Stack Opacity Monitoring System

- C Battery Stack Opacity Monitoring System
- 1-3 PEC Baghouse Fan Amp Measuring System
- 13-15 PEC Baghouse Fan Amp Measuring System
- 19/20 PEC Baghouse Fan Amp Measuring System
- B Battery Baghouse Fan Amp Measuring System
- C Battery Baghouse Fan Amp Measuring System
- 1-3 PEC Baghouse Bag Leak Detection System
- 13-15 PEC Baghouse Bag Leak Detection System
- 19/20 PEC Baghouse Bag Leak Detection System
- B Battery Baghouse Bag Leak Detection System
- C Battery Baghouse Bag Leak Detection System

4.2 **Plan Elements**

4.2.1 **Battery Start-up** – During the start-up of a battery or an individual oven or ovens following a period of idle hot operation or extended empty period for repair or initial start-up in the case of C Battery; the following situations may occur:

| **Emission Point** | **Issue** | **Action to be Taken** |
|---|---|---|
| Stacks | Loss of sealing carbon (including from purging, outages, etc.) | Dusting and/or spray jambs and/or end flues, if necessary |
| | Open joints around charging holes, standpipe bases, and inspection holes | Patching, spraying, dry gunning, ceramic welding, and/or other repair technique, if necessary |
| | Fuel to air ratio change or imbalance | Adjust gas and/ or air as required |
| | Existing/ previously repaired holes and cracks open up in walls and around flues | Patching, spraying, dusting, and/ or flue maintenance, if necessary |
| Pushing | Low battery and/or flue temperatures | Monitor flue and coke temperatures and coke conditions |
| Quenching | None expected | Normal operation |
| Soaking | Soaking Emissions | See Soaking Work Practice |

4.2.2 **Battery Shutdown** - During the shutdown of a battery or an individual oven or ovens in preparation for a period of idle hot or extended empty period for repair; the following situations may occur:

| Emission Point | Issue | Action to be Taken |
|---|---|---|
| **Stacks** – battery to idle hot & empty ovens | None expected | Normal practices |
| **Stacks** – ovens next to empty ovens | Loss of sealing carbon due to extended coking time | Dusting and/or routine patching and spraying |
| **Pushing** | May experience temperature changes | Monitor adjacent ovens and develop best course of action for heating on a case by case basis |
| | Low battery and/ or temperatures | Monitor flue and coke temperatures and coke conditions |
| **Quenching** | None expected | Normal operation |
| **Soaking** | Soaking emissions | See Soaking Work Practice Plan |

4.2.3 **Battery and/or Oven Malfunction** - The purpose of this section is to ensure that Clairton Works is prepared to correct malfunctions as soon as practical after their occurrence. The issues designated with **BOLD LETTERING** may cause additional challenges during the start-up of a battery and/ or oven. Additional measures may be required or the start-up may need to be postponed. During the malfunction of a battery and/or an oven following situations may occur:

| Emission Point | Issue | Operation | Corrective Action |
|---|---|---|---|
| Stacks | **Loss of underfire COG system to 1 or more batteries** | Normal Operations (assumes NG availability) | Reduce Gas Flow, Increase Draft |
| | **Loss of underfire pressure** | Normal Operations | Center reversing machine, keep underfire main positive psi, reduce gas flow, reduce draft |
| | **Loss of power** | Stop operations until notified by Heating | Manually set Gas and Draft and control valves |
| | COM or COMS failure | Normal Operations | Facilitate Repairs |
| | Extended coking time battery-wide >22.5 hours | Push and Charge within scheduled times | Increased refractory maintenance |

| | | | |
|---|---|---|---|
| | Charge delay due to machine breakdown or coal flow problems | Curtail Pushing if more than 5 Empty ovens; charge up before resuming pushing | Repair machine and notify Heaters of delay and oven numbers; resume normal operation |
| | Foul gas control malfunction (including askania valve malfunction) | Stop charging until notified by Heating Representative | Manually adjust or pin |
| Stacks con. | Extended coking time oven | Monitor stack emissions and adjust operation and/or maintenance (increase refractory maintenance and/ or adjust decarb time) | Bring back into series |
| | Air box malfunction | Normal operations | Facilitate repairs |
| | Confirmed hole in wall/ oven wall failure | Do Not Charge Oven and report oven to Heaters | Place oven out of service until further notice. Implement repairs |
| | Hole in wall/ oven wall failure undetected prior to charge or developed during or after the charge | Notify heaters and/ or operators | Identify oven using charging times or inspecting flue chamber; stabilize the air to fuel ratio by increasing draft, cutting underfire gas, or other means. |
| | **By-products Plant breakdown** | Notify operators and heaters | Facilitate repairs: make underfire adjustments as necessary |
| | Reversing mechanism failure/ malfunction | Normal Operations/Manual Reverses | Facilitate repairs |
| | Air to fuel ratio malfunction | Normal Operations | Adjust gas and/ or air; repair malfunction |
| | Flue or regenerator problem including dropped nozzle | Normal operation | Facilitate repairs |
| | Training system failure | Normal operation | Take corrective action as necessary; retrain |
| | Other cracks & leaks (jambs, etc.) | Notify Heating for inspection | Schedule & perform repair as required |
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| Pushing – excessive emissions | PEC/ shed breakdown/ outage including baghouse, hood, and related equipment | Controlled Pushing | Monitor Coke Conditions and take Heat Delays as Necessary |

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| | PEC/ shed system at reduced efficiency | Controlled Pushing | Monitor Coke Condition. Take Heat Delays as necessary. Facilitate repairs |
| | **Loss of underfire pressure or underfire COG system** | Normal operation | Adjust heating if necessary |
| | Cool coke because adjacent to extended coking time oven or out-of-service oven | Normal Operations | Adjust walls |
| | Reversing system problem | Normal Operations | Repair malfunction |
| | Flushing liquor leak into oven | Normal Operations | Place oven on extended coking time. Repair problem |
| | Steam left in oven | Reduce operations as necessary | Notify Heaters. Heaters to evaluate oven for possible extended coking time. Remove steam from oven. |
| | Coal quality issues (moisture, BD, etc.) | Heat delay, adjust heating, and/ or adjust operations as necessary | Monitor Flue and coke temperatures; adjust heat and/ or modify coal blend, if applicable |
| | Flue problem | Normal Operations | Repair Flues |
| | Door plug failure | Normal operations | Replace door |
| | Irreparable flue | Evaluate for possible extended coking time | Replace flue |
| | Below minimum coking time | Stop Operations until get to minimum | None |
| | Fuel to air ration change or imbalance | Normal operations | Adjust gas and/ or air as required |
| | Training system failure | Normal operations | Take corrective action as necessary; retrain |
| | Low battery and/ or oven/ coke temperatures | Reduce Operations, as necessary | Check heat input & adjust, if necessary. Monitor flue and coke temperatures and coke conditions. Take Heat Delays or bank oven as necessary. |
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| Pushing – work practice deviation | Communication system malfunction (including database, scheduling, and notification systems, etc.) | Use telephone, radio, etc | Repair system |
| | Failed to read 4 consecutive pushes due to battery outage and/ or unexpected delay or battery shutdown | Document outage, delay, or shutdown | None |
| | Recording system failure | Use paper, telephone, radio, etc. | Repair system |
| | Verification failed due to second, independent root cause | Investigate relation to first root cause | Correct second, independent root cause |
| | Failure to perform 90-day observation due to oven out of service or in a work zone | Observe next day light opportunity | None |
| | Training system failure | Employ back-up systems and personnel | Retrain and take corrective action as appropriate |
| | | | |
| Quenching | Spray wash system failure including pump, PLC, nozzle, and piping | Manually wash, if practical and safe | Repair system |
| | Damaged or plugged baffle(s) | Normal operation | Repair or unplug as required |
| | System fails to record ambient temperature below 30 F | Record temperature at nearby location as available | Repair system |
| | Tower PLC fails to initiate wash and fails to record ambient temperature | Record nearest calibrated ambient temperature | Calibrate and repair |
| | Invalid analysis or contaminated sample | Re-sample and/ or re-analyze | Review procedures and revise and/ or retrain as necessary |
| | Lost sample | Re-sample | Review procedures and revise and/ or retrain as necessary |
| | Erroneous source enters the quench sump causing high TDS | Normal operation | Remove source |

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| | Training system failure | Normal operation | Retrain and take corrective action as appropriate |
| | River water makeup TDS is high | Normal operation | Investigate other options |
| | | | |
| Soaking | Training system failure | Document | Retrain and take corrective action as appropriate |
| | Nozzle failure | Inject minimal amount of aspirating steam & report | Repair nozzle |
| | Damper dish fails | Inject minimal amount of aspirating steam & report | Repair damper dish |
| | PROven system fails | *Inject minimal amount of aspirating steam & report* | Repair system |

4.2.4 During start-ups, shutdowns, and malfunctions, efforts will be made to eliminate or minimize emissions; however, emissions will not be diverted in order to by-pass a monitoring device such as the stack continuous opacity monitor or bag leak detection system or a capture and control device such as the PEC systems. When a malfunction of the PEC system occurs, the proper procedures will be followed.

## 5.0 Plan Maintenance, Recordkeeping and Reporting

### 5.1 Initial plan requirements

- The Operation and Maintenance Plan, Site-Specific Monitoring Plan, Startup, Shutdown and Malfunction Plan and the Site-Specific Soaking Work Practice Plan must be developed and implemented by April 14, 2006
- The plans are not required to be submitted to or approved by U.S. EPA or ACHD unless there is a requirement to do so in Clairton Works final Title V operating permit.
- Failure to meet any condition in a plan is a deviation and must be reported as such in Clairton Works periodic deviation report.

### 5.2 Plan revisions

- Plans may be revised at any time provided ACHD is notified of the revision in the next periodic Title V compliance certification.

### 5.3 Recordkeeping

- Clairton Works must keep all current plans, superceded plans and all information necessary to demonstrate that compliance with each plan requirement on-site for a period of at least 5 years.
- The following records will be kept for 5 years:
  - When and how long each malfunction of MACT operations, or air pollution control and monitoring equipment happened;
  - What corrective action was done to correct/ repair the malfunctioning equipment;
  - Whether the current SS&M Plan was followed;
  - What was done differently than outlined in the current SS&M Plan; and

### 5.4 Special Startup, Shutdown and Malfunction reporting requirement

- If, at any time, Clairton Works fails to follow your Startup, Shutdown and Malfunction Plan during a startup, shutdown or malfunction event Clairton Works must report that failure by telephone, FAX or E-Mail within 2 days following the failure.
- Clairton Works must also send a letter within 7 days following the end of the startup, shutdown or malfunction event, including the following information:
  - Your name and title
  - Certifying signature of the plant Responsible Official
  - How the startup, shutdown or malfunction event happened
  - What you did in response to the event
  - Reasons you did not follow your plan

    - Whether any regulated HAP emissions or monitored parameters were higher or different from their allowable values during the startup, shutdown or malfunction event.
- Within 45 day of the end of the event, Clairton Works must revise the plan to describe what we will do if the event happens again.